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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/416,270	10/12/1999	YOUN-HAN CHANG	400396/YPLEE	5941

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EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 08/02/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-13

Office Action Summary

Application No.
09/416,270

Applicant(s)
Chang

Examiner
Tracy Dove

Art Unit
1745



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 15, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7, 9-13, 15, and 18-21 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 9-13, 15, and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

This Office Action is in response to the communication filed on 7/15/02. Due to an error in the legal form of the Final rejection of 5/10/02, the finality of that Action is withdrawn. Since this Action presents no new grounds of rejection, this Action is accordingly made **FINAL**.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fauteux et al., US 4,925,752.

Fauteux teaches a solid state alkali metal anode cell having significant improvements in cell impedance and, in turn, rechargeability is provided (col. 2, lines 31-36). The cell comprises an alkali metal anode layer, a solid ionically conducting electrolyte layer and a cathode/current collector layer (see abstract). The cathode current collector has a plurality of surface voids (openings) which contain the cathode composition (active material). See col. 3, lines 44-50. The alkali metal anode layer may be a lithium coated foil such as copper foil. The copper foil (current collector) has a layer of lithium (active material) deposited on its surface. See col. 3, lines 64-66.

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The solid electrolyte layer includes an ionizable salt and a polymer, and is located between the anode and the cathode. The cathode collector may be made of aluminum. See col. 5, lines 5-62. See also claim 12.

Specifically, Fauteux teaches a solid state electrochemical cell having a porous cathode current collector. The cathode/current collector layer comprises a substrate which has a plurality of surface voids. As shown in Fig. 1, the substrate is in the form of a screen or grid. However, other physical forms such as foamed states, etched foils, electroplated films, woven or non-woven fabrics may be utilized as the substrate. A collector of expanded metal is disclosed in col. 2, lines 54-63. The cathode composition (active material) is coated onto at least one surface of the positive current collector. See col. 3, lines 44-53. The alkali metal anode layer may take the form of a lithium foil, a lithium coated foil such as nickel or copper foil having a layer of lithium deposited on its surface or a lithium alloy. See col. 3, lines 63-66. The electrolyte layer, which is ionically but not electrically conductive, takes the form of a solid material (separator) and is laminated to the alkali metal anode layer and the cathode/current collector layer. See col. 4, lines 3-6. Cathode compositions are disclosed at col. 5, lines 21-44. To produce the cathode/current collector material, the materials used to form the cathode composition are mixed together (slurry) and coated onto the surface of the current collector substrate (col. 5, lines 63-66).

Thus the claims are anticipated.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 12, 13, 15 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fauteux et al., US 4,925,752.

See discussion of Fauteux above.

Fauteux does not explicitly state the cathode current collector is punched metal or that the active material is coated on both sides of the collector.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because one of skill would have known that a punched metal substrate could be used as the collector with surface voids of Fauteux. Fauteux teaches other physical forms may be used as the collector with holes for the cathode. Since a punched metal is a collector with surface voids (holes), one of skill would find it obvious to use the punched metal substrate for the collector with surface voids of Fauteux.

Regarding the limitation that active material is coated on both sides of the collectors, Fauteux does not explicitly state whether the active material is coated on only one or both sides of the collector. However, Fauteux recites "Maintained within voids 20 is cathode composition 22.

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Referring now to Fig. 2, it is seen that the surface of substrate 18 which faces electrolyte layer 14 is also coated with cathode composition 22.” See col. 3, lines 49-53. This disclosure suggests that the cathode composition is coated on both sides of the collector. Furthermore, it is well known in the art to coat both sides of a positive or negative current collector with active material.

Regarding claims 13 and 15, Fauteux teaches laminar thin-cell batteries containing alkali metal anodes are known in the art, and those skilled in the art will appreciate that the laminar batteries can have many constructions, such as those including a jelly roll or fan folded laminate strip design. Thus, Fauteux provides obvious motivation for the limitation “a plurality of bi-cells stacked on each other” of claims 13 and 15 because Fauteux teaches that one of skill would know that laminar thin-cell batteries can have many construction types. The bi-cell assembly is commonly used for polymer electrolyte cells. This is evidenced by Linden, Handbook of Batteries (pages 36.37-36.42), which teaches the bi-cell is the basic assembly unit (36.39). See Figure 36.28. Linden teaches positive and negative tabs (taps) which are connected to form the cell terminals.

Response to Amendment

The finality of the rejection of the last Office action dated 5/10/02 is withdrawn.

Response to Arguments

Applicant's arguments filed 7/15/02 have been fully considered but they are not persuasive.

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Applicant argues that Fauteux does not describe a current collector “consisting of a copper foil”. Applicant further argues that claiming a current collector “including” a copper foil is quite different from claiming a current collector “consisting of” a copper foil.

While the Examiner agrees that claiming a current collector “including” a copper foil is quite different from claiming a current collector “consisting of” a copper foil, this argument is not applicable to the prior art rejection of record. Specifically, Fauteux teaches the anode layer may be a lithium coated copper foil. Fauteux does not teach the negative current collector may be a lithium coated copper foil. As stated above, Fauteux teaches the anode layer may be a lithium coated (active material) copper foil (current collector). Thus, Fauteux does describe a negative current collector “consisting of a copper foil”.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

July 30, 2002


CAROL CHANEY
PRIMARY EXAMINER